

AMENDMENTS TO THE CLAIMS

1. **(Currently amended)** A method suitable for producing a consensus classification of organisms using the data derived from two or more experiments performed on said organisms or samples thereof comprising the steps of:

i) obtaining similarity matrices from ~~the~~ said data,

ii) ~~producing~~ calculating a composite similarity matrix ~~that is a function of said similarity matrices by averaging corresponding elements of respective similarity matrices, wherein each similarity matrix is weighted according to the number of experimental characters used to calculate each said similarity matrix, to arrive at the average, and~~

iii) producing a consensus classification from said composite similarity matrix, and

iv) visualizing said consensus classification in a form that provides an understanding of the organism and its features.

2. **(Canceled)**

3. **(Canceled)**

4. **(Currently amended)** A method according to claim 1 ~~2~~ wherein each similarity matrix is weighted by a user defined value to arrive at the average.

5. **(Currently amended)** A method according to claim 1 ~~2~~, wherein said experiments produce product size or retention time results, and wherein ~~the~~ each element of each similarity matrix is weighted according to ~~the a~~ number of ~~bands or~~ features associated with that element, to arrive at the average.

6. **(Currently amended)** A method according to claim 5 wherein said experiments are any of electrophoresis, ~~high-performance liquid chromatography, gas chromatography, capillary electrophoresis, chromatography, thin layer chromatography, and/or mass spectrometry.~~

7. **(Currently amended)** A method according to claim 1 wherein the function of step ii) comprises the steps of:

a) linearizing said similarity ~~data~~ matrices, and

b) averaging ~~the~~ corresponding elements of said linearized similarity matrices of step a).

8. **(Currently amended)** A method according to claim 7 wherein step a) comprises the minimization of equations:

$$\sum_{i=1}^p \sum_{j=1}^{i-1} \left(\hat{d}_{k,ij} - f_k(D_{ij}) \right)^2, \forall k$$

$$\sum_{i=1}^p \sum_{j=1}^{i-1} \left(D_{ij} - g_k(\hat{d}_{k,ij}) \right)^2, \forall k$$

wherein p is the number of organisms, samples or genotypes, wherein each technique k results in a matrix of pair-wise distance values, so that the distance value obtained between organism i and

j from technique k is given by $d_{k,ij}$, wherein $\hat{d}_{k,ij} = \frac{d_{k,ij}}{S_k}$ with $S_k = \frac{2}{(p-1)(p-2)} \sum_{i=1}^p \sum_{j=1}^{i-1} d_{k,ij}$,

wherein the consensus distance matrix D_{ij} is considered as the unknown true universal distance

scale and wherein the goal is to search the consensus distances D_{ij} , and the functions g_k and f_k

so that $\hat{d}_{k,ij} \cong f_k(D_{ij})$ and $D_{ij} \cong g_k(\hat{d}_{k,ij})$ hold as true as possible, wherein each function f_k holds information about the range of experiment k and wherein $g_k = f_k^{-1}$ in the ideal case.

9. (Withdrawn) An apparatus suitable for performing the methods according to claims 1 to 8.

10. (Withdrawn) A computer program comprising a computing routine, stored on a computer readable medium suitable for producing a consensus classification of organisms using the data derived from two or more experiments performed on said organisms or samples thereof according to the methods of claims 1 to 8.

11. (Withdrawn) A device suitable for producing a consensus classification of organisms using the data derived from two or more experiments performed on said organisms or samples thereof according to the methods of claims 1 to 8.

12. (New) The method of claim 1 wherein said visualizing is by viewing of a dendrogram, a Principal Components Analysis (PCA), a Self-Organizing Map (SOM), or a Discriminant Analysis (DA).

13. (New) The method of claim 6 wherein said electrophoresis is capillary electrophoresis.

14. (New) The method of claim 6 wherein said chromatography is high performance liquid chromatography, gas chromatography and/or thin-layer chromatography.